**STSE Blog Summary**

Every student will be required to create two blog entries on the following two topics:

1. An example of redox reaction from everyday life.  
   Possible Examples:   
   Redox reactions in human bodies  
   Redox reactions in breathalyzers  
   Redox reactions in batteries
2. An issue pertaining to an electrochemical technology.

Possible Examples:  
Where to get hydrogen for hydrogen fuel cells?

Disposal of rechargeable batteries

Where do electroplating ‘spent’ solutions go?

Every student is also required to comment on any two ­­­different second blog entries of their peers.  
Students should present information in their second blog entries in one of the following formats:

1. Personal opinion about an electrochemical technology supported with logical reasons/arguments.
2. Insights obtained from an audio, video or an article
3. Critique of an audio, video or an article
4. Letter to an organization regarding an important matter.

Students’ comments on their peers’ blog entries should be in one of the following formats:

1. Agreement or disagreement with the idea in the original blog entry supported with logical reasons or arguments.
2. Further development of the idea in the original blog entry

Having students to create their blog entries will allow students to think outside the box by carrying out research on the curriculum topics and by gaining insights beyond the scope of textbook. Commenting on their peers’ blog entries’ will allow students to engage in academic and respectful discussions. Creating blog entries will also enable students to apply knowledge to other fields of science and “real-life” situations which makes learning science purposeful.

According to the unit outline, students will be provided class time in a computer lab to create their first blog entry and ask questions relating to blog editing and commenting. Due dates are assigned for each blog entry and comment in order to ensure that students are completing the submissions on a regular basis. Students will also be given the rubric which is a general guideline for the evaluation of the blog entries.

**Ministry Expectations:**

## Big Ideas:

(From the Ministry Expectations: *The Ontario Curriculum Grades 11 and 12*: Science 2008)

***Electrochemistry***

* The control and applications of oxidation and reduction reactions have significant implications for industry, health and safety, and the environment.

## Overall Expectations

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| --- |
| **Grade 12 University Preparation** |
| **A1.** demonstrate scientific investigation skills (related to both inquiry and research) in the four areas  of skills (initiating and planning, performing and recording, analysing and interpreting,  and communicating);  **A2.** identify and describe careers related to the fields of science under study, and describe the contributions of scientists, including Canadians, to those fields.  **F1.** analyse technologies and processes relating to electrochemistry, and their implications for society, health and safety, and the environment;  **F2.** investigate oxidation-reduction reactions using a galvanic cell, and analyse electrochemical reactions in qualitative and quantitative terms;  **F3.** demonstrate an understanding of the principles of oxidation-reduction reactions and the many practical applications of electrochemistry. |

\*note: expectations and the degree of them being covered is dependent on the topics chosen by the students as they complete their blog.

## Specific Expectations

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| **Grade 12 University Preparation** |
| **Scientific Investigation Skills and Career Exploration** |
| **A1.1** formulate relevant scientific questions about observed relationships, ideas, problems, or issues, make informed predictions, and/or formulate educated hypotheses to focus inquiries or research  **A1.3** identify and locate a variety of print and electronic sources that enable them to address research topics fully and appropriately  **A1.7** select, organize, and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and human sources, using suitable formats and an accepted form of academic documentation  **A1.9** analyse the information gathered from research sources for logic, accuracy, reliability, adequacy, and bias  **A1.10** draw conclusions based on inquiry results and research findings, and justify their conclusions with reference to scientific knowledge **A1.11** communicate ideas, plans, procedures, results, and conclusions orally, in writing, and/or in electronic presentations, using appropriate language and a variety of formats (e.g., data tables, laboratory reports, presentations, debates, simulations, models)  **A2.1** identify and describe a variety of careers related to the fields of science under study (e.g., food and drug analyst, chemical safety officer, nurse practitioner, consumer protection specialist, metallurgy technologist, environmental and waste management technician, geochemist) and the education and training necessary for  these careers  **A2.2** describe the contributions of scientists, including Canadians (e.g., Robert G. Ackman, Alice Wilson, Carol Ann Budd, Norman L. Bowen, Brian Evans Conway), to the fields under study |
| **ELECTROCHEMISTRY** |
| Relating Science to Technology, Society, and the Environment |
| **F1.1** assess, on the basis of research, the viability of using electrochemical technologies as alternative  sources of energy (e.g., fuel cells for emergency power generation or as power sources in remote locations), and explain their potential impact on society and the environment [IP, PR, AI, C]  **F1.2** analyse health and safety issues involving electrochemistry (e.g., corrosion of metal pipes in drinking water systems) [AI, C] |
| Developing Skills of Investigation and Communication |
| **F2.1** use appropriate terminology related to electrochemistry, including, but not limited to:  *half-reaction, electrochemical cell, reducing agent, oxidizing agent, redox reaction,* and *oxidation number* [C] |
| Understanding Basic Concepts |
| **F3.5** explain some applications of electrochemistry in common industrial processes (e.g., in refining metals such as aluminum and zinc; in the production of hydrogen)  **F3.6** explain the corrosion of metals in terms of an electrochemical process, and describe some common corrosion-inhibiting techniques (e.g., painting, galvanizing, cathodic protection) |

**Teacher Notes**

(i) Blog Exemplar Link:

www.electrochemistry12.blogspot.com

(ii) Rubric (see the next page)

iii) Pedagogical Instructions (See Blog Summary)

(iv) Timeline and connection to Unit Plan Outline:

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| --- | --- |
| **Day #**  **(from unit outline)** | **Task** |
| 8 | Students post their first blog entry. The written piece should have been completed prior to Day 8 and be ready to post online. |
| 18 | Deadline for the second blog entry. |
| 20 | Student should have made comments on two different second blog entries of their peers. |

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| --- | --- | --- | --- | --- | --- |
| OUTCOME ASSESSED | Beginning | Developing | Proficient | Strong | WEIGHT |
| 1 | 2 | 3 | 4 |
| *Completion* | No blog entries and comments posted. | One blog entry and one or no comments posted. | Two blog entries and two comments on peers’ entries were posted after the deadline or in the unacceptable format. | Two blog entries and two comments on peers’ entries were posted on time and in the acceptable format. | 40% |
| *Intellectual Engagement with Key Concepts* | Blog entries make no reference to issues raised through readings and/or class activities | Blog entries make some reference to issues raised through readings and/or class activities | Blog entries demonstrate awareness of most of the key issues raised through readings and/or class activities | Blog entries demonstrate engagement with the important issues raised through readings and/or class activities | 25% |
| *Personal Response to Key Concepts* | Blog entries/comments show no personal response is made to the issues/concepts raised in the readings/activities | Blog entries/comments convey little evidence of a personal response to the issues/concepts raised in the readings/activities | Blog entries/comments convey evidence of a personal response to the issues raised in the readings/ activities, and demonstrate that the author is capable of reflecting on learning, technology, and society. | Blog entries/comments convey extensive evidence of a personal response to the issues raised in the readings/ activities, and demonstrate the author's growth through reflection on learning, technology and society. | 25% |
| *Engaged Writing* | Blog entries/comments use incorrect grammar and syntax consistently, making it difficult for others to follow. No links are included connecting your thoughts to those of others. | Blog entries/ comments demonstrate some evidence of correct spelling, grammar, punctuation, etc. Audience will have little trouble reading your blog. An occasional link is included. | Blog entries/comments show a good command of standard English. No problems for your audience. Most blog entries include links. | Blog entries/comments show a very good command of standard English and have some flair and originality. Blog entries may contain multiple links. | 10% |

**STSE BLOG RUBRIC**